CLAIMS

What is claimed is:

1.   A method for providing a halftoned image comprising the step of:

scaling the halftoned image by performing pel repetition utilizing an error diffusion algorithm such that artifacts are minimized.

2.   The method of claim 1 wherein n x m pel blocks of an image are scaled to n+1 x m pel blocks by inserting single pels in each block at locations distributed through the block according to the error-diffusion algorithm, with values chosen such that the average intensity of the block is substantially unchanged.

3.   The method of claim 1 wherein no pel from a n x m pel block is shifted more than one position from its neighboring pels in the scaled (n+1 x m) block.

4.   The method of claim 3 wherein the n x m pel block is shifted by a shifting matrix.

5.   The method of claim 2 wherein a threshold matrix is utilized to maintain the average intensity of a block.

6.   A printing system for providing a halftoned image comprising:

a storage device for providing a continuous tone (contone) image;

a spooler for receiving the contone image and converting the image to a halftoned image;

a scaler for scaling the halftoned image by performing pel repetition utilizing a error diffusion algorithm such that artifacts are minimized; and

a printer for receiving the halftoned image and printing the image.

7.   The system of claim 6 wherein the scaler is within the printer.

8.   The system of claim 6 wherein n x m pel blocks of an image are scaled to n+1 x m pel blocks by inserting single pels in each block at locations distributed through the block according to the error-diffusion algorithm, with values chosen such that the average intensity of the block is substantially unchanged.

9.   The system of claim 6 wherein no pel from a n x m pel block is shifted more than one position from its neighboring pels in the scaled (n+1 x m) block.

10.   The system of claim 9 wherein the n x m pel block is shifted by a shifting matrix.

11.   The system of claim 8 wherein a threshold matrix is utilized to maintain the average intensity of a block.

12.   A computer readable medium containing program instructions for providing a halftoned image, the program instructions for:

scaling the halftoned image by performing pel repetition utilizing an error diffusion algorithm such that artifacts are minimized.

13.   The computer readable medium of claim 12 wherein n x m pel blocks of an image are scaled to n+1 x m pel blocks by inserting single pels in each block at locations distributed through the block according to the error-diffusion algorithm, with values chosen such that the average intensity of the block is substantially unchanged.

14.   The computer readable medium of claim 12 wherein no pel from a n x m pel block is shifted more than one position from its neighboring pels in the scaled (n+1 x m) block.

15.   The computer readable medium of claim 14 wherein the n x m pel block is shifted by a shifting matrix.

16.   The computer readable medium of claim 13 wherein a threshold matrix is utilized to maintain the average intensity of a block.